

A CHARACTERIZATION OF THE NONINDUSTRIAL PRIVATE FOREST LANDOWNERS OF ARKANSAS

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INTRODUCTION

Forest and timber and forest and timberland management are issues of great importance to Arkansas. The timber industry plays a major role in the State's economy and is constantly being transformed as it becomes more capital intensive and as the southern region, including Arkansas, becomes a more important player in the provision of the nation's supply of timber and timber-related products. This transformation is also affected by the globalization of this industry. Nonindustrial private forest (NIPF) landowners, who own and control a large proportion of Arkansas' forested lands, play an increasingly important role in providing these products. At the same time, aesthetic and environmental considerations have become more important. Much of Arkansas has benefited from the in-migration of retirees, as well as others who are attracted—among other things—by the State's "natural" environment, an environment that owes much to its vast forest lands, both public and private. The management of public forest lands is also being transformed, with increasing demands coming from practically all elements of the USDA National Forest's "multi-use" management strategy.

No comprehensive description of the State's NIPF landowners has been done since the studies reported by Greene and Greene and Blatner in the middle to late 1980's. That study, like the one reported here, was based primarily upon a mailed survey, supplemented by 200 personal interviews. It focused primarily upon identifying the characteristics associated with timber management, timber-owner attitudes toward timber production, and the management and policy implications of these. Statistical methods were used to try to classify respondents into two groups: "managers," and "nonmanagers." These were then compared.

The study reported here is based upon another mailed survey, which was sent to 2,400 forest landowners in a sample of 12 counties in Arkansas using standard procedures for mailed surveys, and providing a questionnaire that was designed from the previous one including input received from focus groups held in the four regions of Arkansas. Nearly 870 usable questionnaires were returned. Some of the results have been reported previously, mostly in the form of professional presentations

and public meetings (Williams and others 1996). They are presented here in considerable detail. The presentation is more descriptive than analytic, and we follow a pattern throughout of presenting results for the State as a whole and for each of the four physiographic regions of the State, among which are substantial differences on many important aspects of forestry and forest management.

METHODOLOGY

Sample Selection

County selection—Twelve counties were selected, with the probabilities of selection roughly equal to the acreage in private, nonindustrial forest lands in the county, using procedures described for multistage sampling (Sudman 1976). The total acreage of NIPF land in the State was divided by 12 to obtain an appropriate sampling interval, I . The counties were then sorted by region to insure that the sample would be spread across all regions, and the cumulative sum of NIPF acreage in all 75 counties was calculated across the entire list of counties. A random number R was selected between 1 and I as a starting point. Finally, the county in which the R th acre occurred was selected, then the one in which the $R + I$ th acre was located, then the one in which the $R + 2I$ th acre was located, then the one in which $R + 3I$ th acre was located, etc., through the entire list of cumulative acreage values. Then, consideration was given to overlap with the National Private Land Owner Survey (NPLOS) being carried out at the same time by the Southern Forest Experiment Station in Athens, Georgia. In several cases, counties selected by the procedure above were replaced by NPLOS counties that were similar in location, acreage of NIPF, etc. The Arkansas counties finally selected included Fulton, Johnson, Madison, Sharp, and Stone Counties in the Ozark region, Cross and Lincoln counties in the Delta region, Logan and Perry Counties in the Ouachita region, and Bradley, Miller and Ouachita Counties in the Coastal Plain region.

Respondent selection—Two hundred samples were selected from each county using systematic random sampling from the timber landowners on the county real estate tax lists. In each case, an estimate was made of the number of entries on the entire list. Sometimes a number

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Citation for proceedings: Guldin, James M., comp. 2001. Proceedings of the symposium on Arkansas forests: a conference on the results of the recent forest survey of Arkansas; 1997 May 30–31; North Little Rock, AR. Gen. Tech. Rep. SRS–41. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 125 p.

was available. At other times several pages were sampled and counted. Then the average was applied to all of the pages of the county tax lists to obtain this number. This number was then divided by 200 to obtain an appropriate interval, I , for systematic sampling. A random number, N , between from 1 to I was selected. Samples were then drawn by identifying the N th case, the N th plus I , the N th plus $2*I$, the N th plus $3*I$, etc., through the entire list. The nearest landowner marked on the list for the forest landowner fire tax was then selected for the sample. Thus, all members of the sample should be forest landowners. However, those for whom the records showed acreages of less than 5 were not selected. Uniform county sample sizes were used to make it possible to make estimates at the county level with a relatively small overall sample. Of course, this results in different sampling proportions in each county, and a different expansion factor for expanding the sample to the total population. See table 1 for a detailed description of respondent sampling procedures and returns and for estimates of the number of nonindustrial private landowners represented by the samples in each of the sample counties.

Survey Procedures

Various sources were used to design the survey instrument, including the previous survey by Greene (1988) and Greene and Blatner (1986). Four focus groups were held in Fayetteville, Perryville, Huntsville, Star City, and in Camden (Williams and others 1996). Based upon these results added to previous work, an 8-page survey instrument was designed and pre-tested.

Questionnaires were mailed to the entire sample of 2,400 persons in the first wave. A reminder postcard was then sent to those who had not responded within 2 weeks. A second mail-out with new copies of the questionnaires was done 4 weeks after the first mailing to everyone who had not yet responded at that time. The overall response to the first mailing was 582, for a gross response rate of 24 percent. The reminder and last mail-out resulted in receiving another 288 usable questionnaires for a total of 865 or 866, depending upon which variables are used, for a gross response rate of 36 percent. The response by county and region is summarized in table 1. As is shown in table 1, within the 12 sample counties from which they were selected, the respondents each represent about 14.4 NIPF landowners (the last column). This number is estimated by dividing the acreage held by NIPF owners (first column) by the average. This varies greatly from county to county and region to region, ranging from 5.2 in Perry County to 41 in Fulton County.

SURVEY RESULTS

Demographic Characteristics by Region

Table 2 shows the basic socio-demographic characteristics of the respondents by region. The first row in table 2 shows that the respondents were, on average, older, with an overall average of 56 and a high of 61 in the Delta. This compares with an estimated average age of farmers in Arkansas of (54). Most respondents were male (78 percent), and, overall, about half were employed full time.

Full-time employment was higher in the Ouachitas at 58 percent. Nearly the entire remaining half were retired. This ranged from 38 percent in the Ouachitas to 51 percent in the Coastal Plain.

Both the educational levels and income levels of the respondents were relatively high. An overall 32 percent had completed college, and, by far, the majority of respondents reported income levels in the range of from \$25,000 to \$50,000 per year. The highest educational and income levels were found in the Coastal Plain and the lowest in the Ozarks.

Table 3 shows organizational memberships of respondents. Relatively few were organizational members, and, of course, even fewer held offices. The patterns of organizational membership varied substantially among the regions. The most interesting aspect of organizational memberships is that, among these nonindustrial forest landowners, membership in environmental organizations was higher (4.5 percent overall) than membership in timber organizations (3.5 percent overall). This varies by region, of course, with timber organizational membership higher in the Coastal Plain but lower in the other three regions.

Land Ownership by County and Region

Overall, 807 respondents provided some information about the amount of land they owned, reporting an average landownership of 382 acres, with a high of 598 in the Coastal Plain and a low of 231 in the Ozarks (table 4a). For the State as a whole, they reported an average of 252 acres of forested land, 133 acres of pine, 94 acres of hardwood, and 107 acres of farmland. The average acreage of forested land was much higher in the Coastal Plain, at 574 acres, most of which was pine (422 acres). Most of the land had been acquired between 1970 and 1989. Respondents in the Ozarks appeared to report, on the average, somewhat more recent acquisitions. These acreage figures seem to be quite large. Of course, those with the smallest acreages were not selected for the sample, and there were some very large acreages included, which resulted in very skewed distributions in almost all of the counties. The maximum reported for all land owned is 30,000 acres with one respondent alone reporting ownership of 14,000 acres of forested land.

Respondents were asked where they lived relative to their forest land. Their responses are shown in table 4b. More than half did live on their forest land. The highest percentages were in the Ozarks (64.2 percent) and the Ouachitas (63.2 percent). Of course, this leaves a surprisingly large proportion of landowners who do not live on their forest lands. These were asked to also specify the distance they lived from their forest land. The distance was greatest in the Ozarks Region for an average of 109 miles. This region had 6.3 percent (7 people) who lived 500 miles or more away.

Table 5, figure 1, and figure 2 show the relative distribution of forested land and land owners by size category. Nearly half of the landowners report less than 50 acres. However, for the State as a whole, nearly 68 percent of the land is

Table 1—Summary of sample returns from 12-county study of nonindustrial private forest (NIPF) landowners in Arkansas

Region and county	Acreage held by NIPF	Estimated number of owners	Number of samples selected	No. "not applicable" returns	Number of usable returns	Effective return rate	Reporting forested acreage	Average forested acreage N	Number of NIPF owners
<i>Percent</i>									
Ozark	1,038.7	6,925	1,000	30	391	40.3	326	150	21.2
Fulton	184.3	2,220	200	6	75	38.7	54	83	41.1
Johnson	107.0	1,216	200	6	79	40.7	68	88	17.9
Madison	333.1	1,609	200	6	81	41.8	69	207	23.3
Sharp	196.9	1,279	200	6	80	41.2	71	154	18.0
Stone	217.4	1,040	200	6	76	39.2	64	209	16.3
Delta	169.4	1,448	400	11	123	31.6	96	117	15.1
Cross	56.2	646	200	5	52	26.7	41	87	15.8
Lincoln	113.2	809	200	6	71	36.6	55	140	14.7
Quachita	163.8	1,122	400	12	155	39.9	121	146	9.3
Logan	115.0	871	200	6	82	42.3	63	132	13.8
Perry	48.8	303	200	6	73	37.6	58	161	5.2
Coastal Plain	548.4	1,545	600	18	196	33.7	157	355	9.8
Bradley	169.7	465	200	6	72	37.1	64	365	7.3
Miller	124.8	560	200	6	56	28.9	44	223	12.7
Ouachita	253.9	550	200	6	68	35.1	49	462	11.2
Total	1,920.3	10,054	2,400	71	865	37.1	700	191	14.4

Table 2—Demographic characteristics of respondents by region in Arkansas

Demographic characteristics	Total	Coastal Plain	Delta	Ouachita	Ozark
Average age	58.2	59.1	60.9	56.5	57.5
Percent male	78	69	75	80	80
Educational level					
Elem. (percent)	18	14	19	14	22
High school (percent)	50	38	52	58	52
College (incl. Assoc.) (percent)	22	35	20	19	17
Post-grad (percent)	10	13	9	9	9
Total (percent)	100	100	100	100	100
Number	824	187	117	148	372
Employment status					
Full time (percent)	48	40	47	58	48
Part time (percent)	3	3	1	1	4
Retired (percent)	44	51	44	38	43
Other (percent)	5	6	8	3	5
Total (percent)	100	100	100	100	100
Number	833	188	120	146	379
Income levels					
None (percent)	1	0	2	0	2
LT \$10K (percent)	8	6	3	4	12
10 to 25K (percent)	27	21	20	30	31
25 to 50K (percent)	31	32	31	34	29
50 to 100K (percent)	25	28	32	24	21
GT 100K (percent)	8	13	12	8	5
Total (percent)	100	100	100	100	100
Number	747	168	102	134	343

Table 3—Organizational membership by organization and region in Arkansas

Organization	State		Coastal		Delta		Ouachita		Ozark	
	Member	Officer	Member	Officer	Member	Officer	Member	Officer	Member	Officer
----- Percent -----										
Farm, commodity, or breed assn.	13.5	0.7	9.3	0.0	15.1	3.2	18.9	0.8	13.0	0.3
Business Org. (e.g., C of C)	8.8	1.4	11.6	1.2	10.8	2.2	7.6	1.5	7.0	1.3
Environmental organization	4.5	.1	4.7	.6	3.2	0	6.8	0	3.7	0
Outdoor recreation organization	6.6	.7	7.6	0	8.6	2.2	5.3	1.5	6.0	.3
Timber organization	3.6	.1	9.9	.6	0	0	2.3	0	1.7	0
Other interest group	12.4	1.6	12.2	0	9.8	1.1	11.4	2.3	13.8	2.3

Table 4a—Land ownership in Arkansas

Item	State	Coastal	Delta	Ouachita	Ozark
----- Acres -----					
Total land owned (averages)	382	598	366	491	232
Forested land	252	574	117	210	150
Pine	133	422	39	125	22
Hardwood	99	112	42	72	108
Farm land	107	60	235	112	93
Number	807	191	109	141	366
When forest land acquired					
<1949 (percent)	9	11	18	9	5
1950–1959 (percent)	9	11	10	7	9
1960–1969 (percent)	13	15	8	15	13
1970–1979 (percent)	24	23	25	25	23
1980–1989 (percent)	28	29	22	28	29
1990 >(percent)	17	10	17	15	20
Total (percent)	100	100	100	100	100
Number	801	184	111	142	364
----- Percent -----					
Reasons for owning land					
Live in rural environment	58.0	44.9	44.8	65.8	65.8
Enjoy own greenspace	53.6	41.8	44.0	58.1	60.9
Wildlife habitat	52.3	45.9	52.0	53.5	5.0
Building estate for heirs	42.6	57.7	47.2	43.5	33.2
Personal recreation	38.5	31.6	33.6	38.1	43.7
Livestock raising for sale	34.5	21.9	24.8	50.3	37.5
Timber to sell	31.9	59.2	29.6	26.5	21.1
Inherited the land	26.7	48.0	32.8	29.7	12.9
Crop or hay farming for sale	16.2	13.8	26.4	20.0	12.6
Second home site	13.2	6.1	8.8	14.2	17.7
Recreation for others	12.8	13.8	11.2	11.0	13.6
Eventually sell at profit	12.6	11.2	8.8	15.5	13.4
Other reasons	6.8	3.6	5.6	8.4	8.3
Tax shelter	5.4	4.1	3.2	7.1	6.2
Renting dwellings/mobile homes	4.2	4.1	7.2	4.5	3.1
Income from recreation (hunting)	3.9	10.7	1.6	1.3	2.3
Landscape shrubbery for sale	.3	.5	0	.6	.3
Nursery or Christmas trees	.3	.5	0	.6	.3

Table 4b—Residence in relation to forest land owned in Arkansas

	State	Coastal	Delta	Ouachita	Ozarks
Do you live on your forest land? (percent)	57.9	47.5	48.3	63.2	64.2
If not, how many miles is it?	68	57	37	33	109
----- Percent -----					
Distance from forest land					
Less than 5 mile	20.3	19.5	30.8	22.0	15.3
5 to 24 miles	35.7	40.2	38.5	30.0	33.3
25 to 49 miles	13.0	9.2	13.5	24.0	10.8
50 to 99 miles	10.3	12.6	3.8	12.0	10.8
100 to 249 miles	13.0	10.3	11.5	12.0	16.2
250 to 499 miles	5.3	8.0	1.9	0	7.2
500 miles or more	2.3	0	0	0	6.3
Total	99.9	99.8	100.0	100.0	99.9

Table 5—Relative distribution of forested land owned and of owners by size categories and regions in Arkansas

Regions	0–49	50–99	100–249	250–499	500+	Total	Number
Total forested acres							
Coastal Plain	1,421.5	1,790	4,760	5,,497	78,311	91,779.5	160
Delta	1,119.5	634	3,960	3,263.25	2,300	11,276.75	96
Ouachita	1,178.5	2,218	3284	1,960	17,000	25,640.5	122
Ozarks	2,937.5	4,362	11,859	5,907	23,960	49,025.5	326
Total	6,657	9,004	23,863	16,627.25	121,571	177,722.3	704
Percent forested acres							
Coastal Plain	1.5	2.0	5.2	6.0	85.3	100.0	—
Delta	9.9	5.6	35.1	28.9	20.4	100.0	—
Ouachita	4.6	8.7	12.8	7.6	66.3	100.0	—
Ozarks	6.0	8.9	24.2	12.0	48.9	100.0	—
Total	3.7	5.1	13.4	9.4	68.4	100.0	—
Forest landowners							
Coastal Plain	60	25	31	16	28	160	—
Delta	49	9	26	10	2	96	—
Ouachita	55	32	23	6	6	122	—
Ozarks	148	64	78	19	17	326	—
Total	312	130	158	51	53	704	—
Percent of owners							
Coastal Plain	37.5	15.6	19.4	10.0	17.5	100.0	—
Delta	51.0	9.4	27.1	10.4	2.1	100.0	—
Ouachita	45.1	26.2	18.9	4.9	4.9	100.0	—
Ozarks	45.4	19.6	23.9	5.8	5.2	100.0	—
Total	44.3	18.5	22.4	7.2	7.5	100.0	—

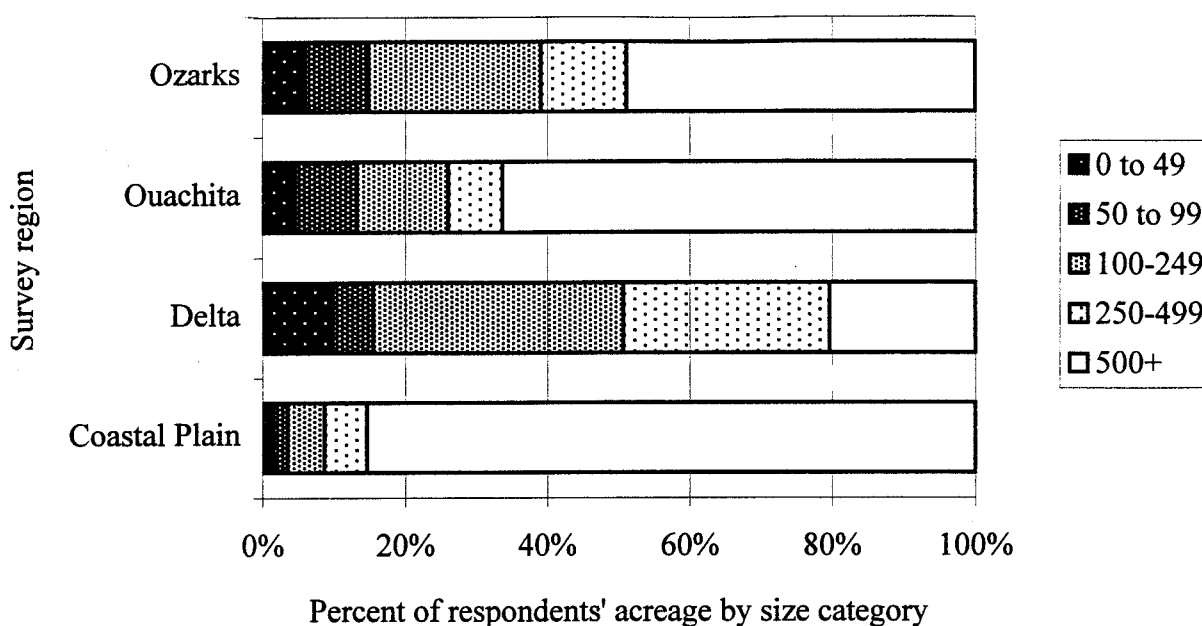


Figure 1—Relative distribution of forested land in Arkansas by size category.

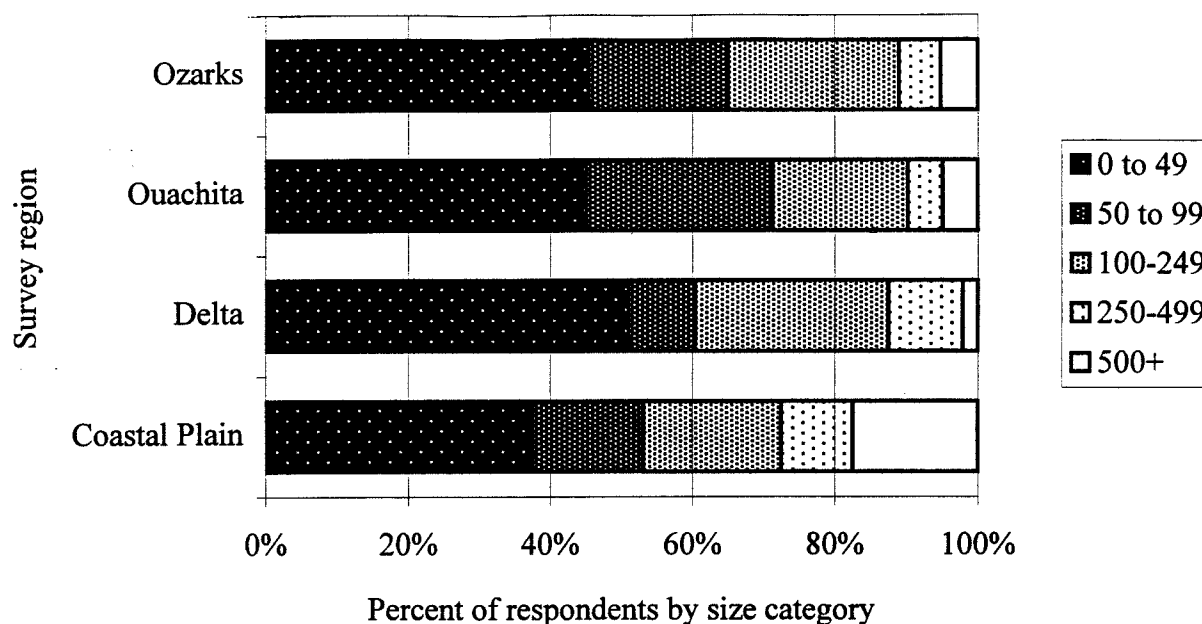


Figure 2—Relative distribution of forest land owners in Arkansas by size category.

owned and managed by those in the largest size category who make up only 7.5 percent of the respondents. For the Coastal Plain region, 85 percent of the land is owned and managed by owners who have 500 acres or more.

Reasons for Owning Land and Intentions for Use of Forest Land

Early in the questionnaire, respondents had been asked to indicate their major reasons for owning land. They were encouraged to mark all reasons that were important to them. The bottom section of table 4a shows the response categories that were provided, which emerged from the focus groups that were performed prior to the survey. The percentage of respondents who selected each item is given, and the reasons have been arranged in descending order of the frequency of selection for the State as a whole.

To “live in rural environment,” to “enjoy own greenspace” and “wildlife habitat” are the three most frequently selected motivations, and each was selected by more than 50 percent of the respondents. This is followed by “building assets for heirs,” which is followed, again, by “personal recreation.” This shows a surprisingly high environmental, aesthetic, and recreational set of motives. And, interestingly, it is relatively consistent across regions, except for the Coastal Plain, where these three items are substantially lower. Selling timber, on the other hand, while not particularly low, was selected by more than 50 percent only in the Coastal Plain (59.2 percent), and overall was selected by only 32 percent of the respondents. Perhaps most interesting, though, is the fourth most frequently selected reason, “building estate for heirs.” Professionals working with NIPF landowners have known for a long time that long-term banking and asset building are key factors in forest land ownership and management. “Tax shelter,” appeared very infrequently, with an overall percentage of only 5.4 percent.

An exploratory factor analysis was performed on the 17 items in the list of reasons for owning land. Five factors were identified. The rotated factor matrix is shown in table 6. The patterns in the five factors are quite distinct. Those questions with the highest loadings on the respective factors are indicated in bold in table 6. The factors, called “Reason1” to “Reason5” appear to represent the following content:

Reasons1—Greenspace, recreation, and rural environment (Environment and recreation).
Reasons2—Nursery for shrubbery, Christmas trees, and renting out for dwellings and mobile homes (Nursery).
Reasons3—Selling timber, inherited, building estate, hunting (Timber).
Reasons4—Farming and tax shelter (Farming).
Reasons5—Residence, eventually sell at a profit (Residence).

Table 7 and figure 3 show the average factor scores by region for the State on these five factors. This analysis does show a clear distinction among regions, especially on Reasons1, Environment and Recreation, which is relatively high in the Ozarks and quite low in the Coastal Plain, and, conversely, on Reasons3, Timber, which is high in the Coastal Plain and low in the Ozarks. Reasons2, Nursery, which is a reason that occurred infrequently, is hardly distinguishable by region at all.

It might seem reasonable to expect that the value placed upon environment and recreation would be associated with the size and type of landholding, and that higher values on this factor would be found among the smaller land owners. A correlation analysis was performed among the acreage variables and the five factors, and a regression model was estimated in which the factors were the dependent variables and the several acreage measures and region were independent variables. Because of the paucity of

Table 6—Exploratory factor analysis of reasons for owning land in Arkansas

Variable	Reasons1	Reasons2	Reasons3	Reasons4	Reasons5
Renting dwellings or mobile homes	0.141	0.392	0.047	0.033	0.150
Second home site	.256	.095	- .071	- .138	.481
Inherited land	- .227	.103	.596	- .168	- .173
Personal greenspace	.743	.080	- .186	- .031	- .063
Tax shelter	.128	.217	.177	.369	.299
Personal recreation	.732	.039	.117	.042	.180
Eventually sell at profit	- .017	.078	.008	.059	.781
Recreation for others	.501	- .005	.313	.068	.194
Making money from hunting, rec.	.043	.119	.501	.001	.122
Wildlife habitat	.731	.028	.145	- .049	.055
Estate for heirs	.273	- .023	.551	.163	- .053
Live in rural environment	.452	.134	- .320	.344	- .356
Crops or hay for sale	- .064	.078	.055	.770	.043
Livestock for sale	.023	- .037	- .026	.821	- .140
Landscape shrubbery for sale	- .048	.878	.045	.079	.002
Nursery or Christmas trees for sale	.012	.881	.057	.005	.019
Timber for sale	.067	- .011	.661	.071	.012

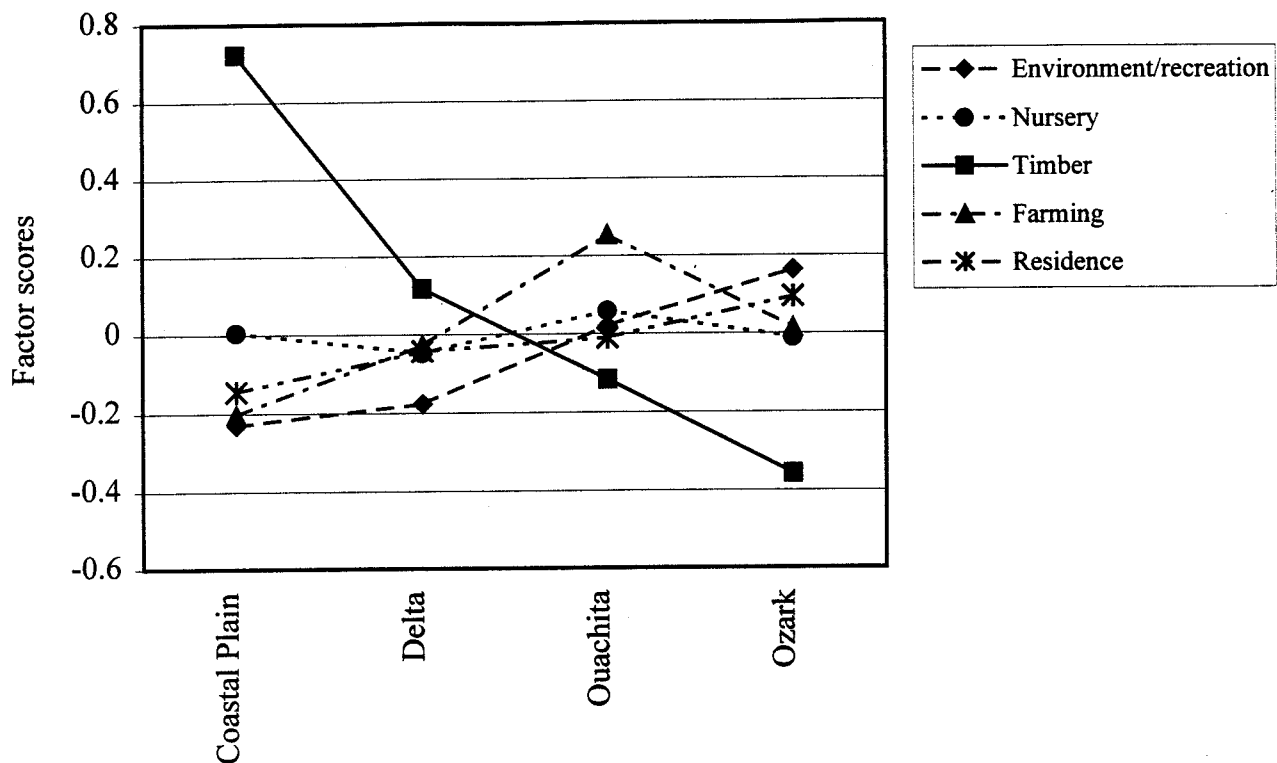


Figure 3—Factor scores for the five reasons landowners identified when asked why they own forest land in Arkansas.

Table 7—Factor scores for the reasons for owning land by region in Arkansas

	State	Coastal	Delta	Ouachita	Ozark
- - - Factor scores for "reasons" factors - - -					
Reasons1	0.000	-0.231	-0.177	0.020	0.163
Reasons2	0	.005	- .047	.058	- .011
Reasons3	0	.723	.117	- .117	- .358
Reasons4	0	- .203	- .027	.254	.013
Reasons5	0	- .145	- .043	- .011	.094

significant correlations, these analyses are not reported here. There is a very slight negative association between size of land holding and environment and recreation, but it is usually not statistically significant. Hence, it is not correct to conclude that the preference for environment and recreation is true only of small land owners, or even that it is limited to a particular region of the State, even though the regions do differ somewhat.

The second question respondents were asked was "... how you intend to use and manage your land in the future." The possible responses, together with the summary labels we use, were:

Only Enviro.—I will emphasize improving wildlife, water, beauty or other natural aspects and do not intend on using my land to make money, for example, by growing timber to sell or raising livestock.
 Enviro.—I will emphasize improving the natural aspects of my land, but I do intend on using my land to make money, for example, by growing timber to sell or raising livestock.
 Money—I will emphasize using my land to make money, but I will also put some effort into maintaining the natural aspects.
 Only Money—will mostly use my land to just make money.

The responses to these questions are presented in terms of percentages responding to each option in table 8 and are presented in figure 4. The pattern is similar to that observed above. From the Coastal Plain across to the Ozarks, the proportion selecting "All Enviro" increases, whereas "Money" decreases. "Enviro," and "All Money" do not show a particular pattern. However what is most remarkable is that for the State as a whole, 62 percent of NIPF landowners gives environmental, recreational, and aesthetic answers to this question.

Finally, respondents were asked about specific plans to sell timber in the future. The question was:

Do you plan to sell any timber (check the one best answer)
 ___ in the next 5 years,
 ___ 6–10 years from now,
 ___ sometime, but I don't know when,
 ___ No plan to sell,
 ___ don't know.

Table 8—Intentions about use of forest land in Arkansas

Question	Total	Coastal	Delta	Ouachita	Ozark
- - - - - Percent - - - - -					
All Enviro	23	10	17	22	32
Enviro	39	43	35	47	36
Money	22	32	26	23	16
All money	5	3	11	2	5
Don't know	10	12	11	7	11
Missing	3	3	2	2	4
Total	100	100	100	100	100
Number of persons represented	79,000	10,000	10,000	24,000	36,000

Table 9 shows the answers to this question for the whole State and by region. Nearly 47 percent had no plans to sell timber, but this ranged from 22 percent in the Coastal Plain to 59 percent in the Ozarks, with the Delta and Ouachita regions in-between. Twenty seven and one tenth percent (18.4 + 8.7) indicated some plans to sell timber, either in the next 5 years, or during the next 10 years.

Finally, a question was asked about environmental attitudes in context of property rights. Respondents were asked to respond as to whether they strongly agreed, agreed, were neutral, disagreed, or strongly disagreed with the following statements ("Strongly agree" was coded 5, and "Strongly disagree" was coded 1 for the first panel in table 10):

Q3.1 ___ Private land owners have the right to do as they please with their lands regardless of what it does to the environment.
 Q3.2 ___ Private property rights are important, but only if they don't hurt the environment.
 Q3.3 ___ Private property rights should be limited if necessary to protect the environment.

Table 10 presents the results in detail. The first panel presents average scores on these three questions for the

Table 9—Plans to sell timber in the future in Arkansas

Plans to sell timber	Total	Coastal	Delta	Ouachita	Ozark
- - - - - Percent - - - - -					
<5 yrs	18.4	34.1	17.8	15.3	11.4
6–10 yrs	8.7	14.5	9.3	9.9	4.9
Sometime	26.3	29.5	26.2	26.0	24.7
No plans	46.7	22.0	46.7	48.9	59.0
Total	100.0	100.0	100.0	100.0	100.0
Number	735	173	107	131	324

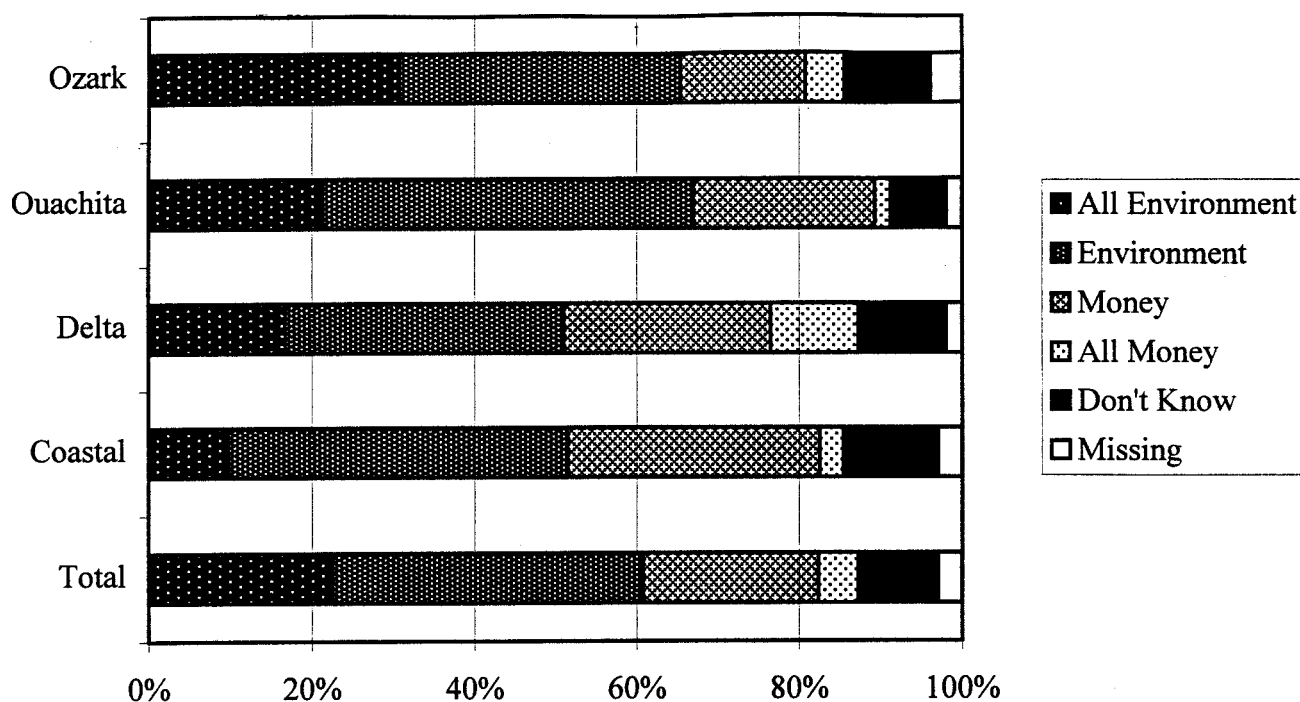


Figure 4—Results of the question asking how Arkansas landowners intend to use and manage their land in the future.

Table 10—Environmental values and property rights in Arkansas

Private property rights	State	Coastal	Delta	Ouachita	Ozark
Q3.1: Do as they please	2.447	2.482	2.706	2.464	2.339
Q3.2: Important but don't hurt env.	3.994	3.961	3.857	4.000	4.050
Q3.3: Should be limited	3.143	3.079	3.000	3.134	3.224
-----Percent-----					
Property rights, Q3.1: Do as they please					
Strongly agree	14.0	12.9	17.4	12.3	14.2
Agree	10.6	12.9	11.0	12.3	8.6
Neutral	9.8	10.0	11.9	13.0	7.7
Disagree	37.3	37.6	44.0	34.1	36.3
Strongly disagree	28.3	26.5	15.6	28.3	33.3
Total	100.0	100.0	100.0	100.0	100.0
Property rights, Q3.2: Important, but don't hurt environment					
Strongly agree	38.0	34.8	21.4	34.3	38.4
Agree	49.6	42.1	56.3	46.4	42.3
Neutral	10.5	11.2	11.6	7.9	8.7
Disagree	8.4	7.9	8.0	7.9	7.3
Strongly disagree	3.8	3.9	2.7	3.6	3.4
Total	110.4	100.0	100.0	100.0	100.0
Property rights, Q3.3: Should be limited					
Strongly agree	11.5	10.3	6.1	12.6	13.4
Agree	38.1	35.8	39.4	35.4	40.1
Neutral	18.4	20.0	20.2	18.9	16.8
Disagree	17.1	19.4	17.2	18.9	15.2
Strongly disagree	14.9	14.5	17.2	14.2	14.6
Total	100.0	100.0	100.0	100.0	100.0

State and for the regions. The other three panels present relative frequency distributions for each of the questions individually. These results are also summarized in figure 5. It seems remarkable that, even in the context of the issues of private property rights, there is relatively high agreement with limitations upon private land rights for environmental purposes and relatively low support for completely unlimited property rights. The differences by region follow the same pattern as above. However, they do not appear to be great.

What we find, then, is what appears to be a relatively low level of interest in the direct economic use of forest land and in the selling of timber from the land; and, conversely, what appears to be preference for environmental, recreational, and aesthetic objectives for use of the forest land. This is, of course, consistent with considerable other research that has been done on NIPF landowners.

Land Management and Land Management Issues

When respondents were asked who actually managed their forest land, they answered as indicated in the top frame of table 11 and figure 6. Most (77 percent for the State as a whole) said they managed it themselves. Fourteen percent said no one did, and a little less than 9 percent said someone else did. Presumably, many of these involve specialized or professional management. This question was followed by a question regarding the kind of land management practices that had been applied during the last year. These are reported in two ways in table 11. The second panel shows the percentage who said they had engaged in this particular practice during the last year. The third panel shows the average number of acres involved for those who engaged in the practice. "Improved habitat for wildlife" was by far the most frequent land management

practice reported by nearly 43 percent for the State as a whole, 34 percent in the Coastal Plain, and nearly 48 percent in the Ozarks. The next most frequently mentioned was "Applied fertilizer to rangelands or woodlands" (28.5 percent for the State, 19.5 percent in the Coastal Plain, and 37 percent in the Ozarks). The next in order of frequency were "Provided habitat and/or protection for songbirds" (28.5 percent), "Thinned for better growth" (27.5 percent), "Harvested mature timber" (26.9 percent), and "Planted trees" (25.6 percent). And, as would be expected, the frequency of these various practices varied substantially among the regions. For example, whereas 42.2 percent reported harvesting timber in the Coastal Plain, only 19.6 percent had done so in the Ozarks.

Respondents were asked whether they had encountered any particular problems in the management of their forest lands. The percentages reporting each of a list of possible problems by State and region are reported in table 12 and figure 7. The most frequently reported problem is trash dumping at 45.9 percent. Poaching follows in frequency at 39.9 percent. Land use regulations and restrictions were the least frequently mentioned. At only 3.8 percent overall, 1.1 percent in the Coastal Plain, 14.3 percent in the Ouachitas. It was mentioned by nearly 8 percent in the Ouachita's and only 1 percent in the Coastal Plain. Timber theft is apparently not uncommon, having been reported by 16.7 percent overall and by 22 percent in the Coastal Plain.

Respondents were also asked about the impact that taxes have upon the management of their lands. The responses are summarized in table 13 and figure 8. Overall, nearly 28 percent said that taxes influenced their management. This was 46.5 percent in the Coastal Plain and 21.3 percent in the Ozarks. Of those who said that taxes influenced how

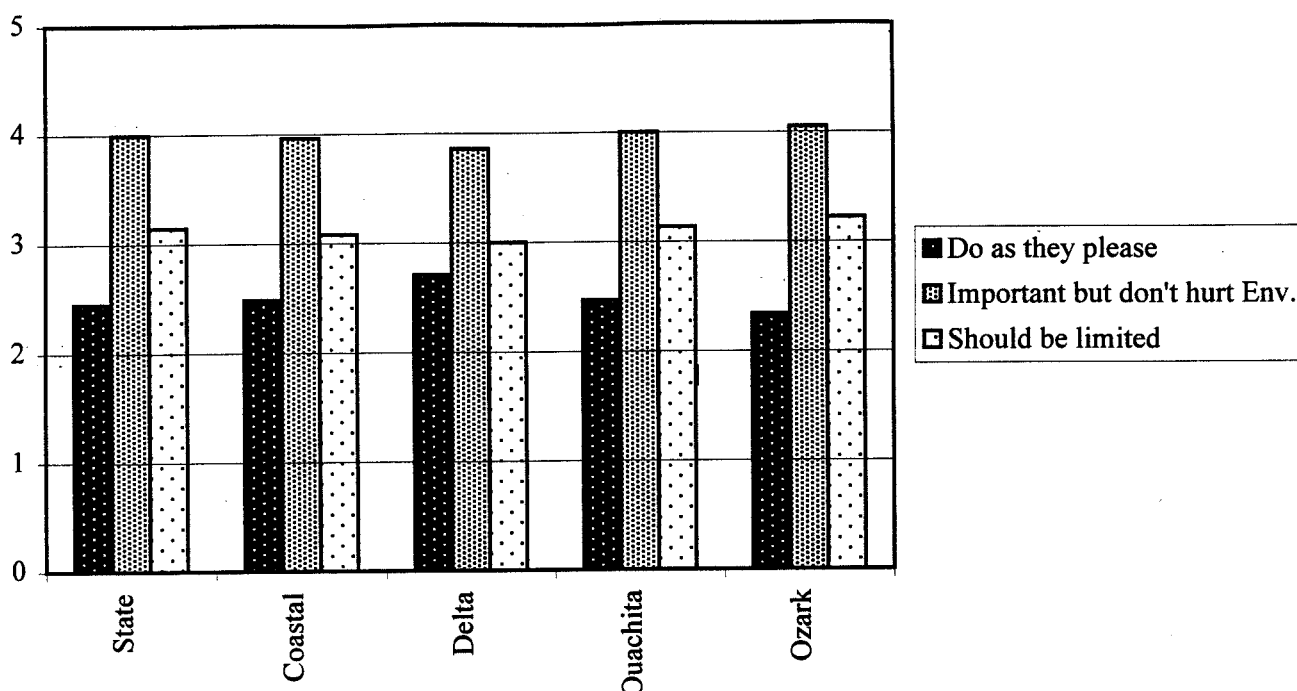


Figure 5—Results of questions raised regarding privacy of forest land ownership.

Table 11—Management of forest lands in Arkansas

	State	Coastal	Delta	Ouachita	Ozark
Who manages forest land?					
Self	77.0%	71.9%	69.0%	80.0%	80.9%
Other	8.9%	18.9%	14.7%	5.5%	3.3%
No one	14.1%	9.2%	16.4%	14.5%	15.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Number	813	185	116	145	367
----- Percent who used practice -----					
Management practices used					
Q6.1: Cleared for pasture/farming	15.6	8.3	7.8	25.0	18.9
Q6.2: Harvested mature timber	26.9	42.2	27.6	23.8	19.6
Q6.3: Thinned for better growth	27.5	39.8	19.6	22.0	25.7
Q6.4: Planted trees	25.6	31.3	20.4	26.2	24.0
Q6.5: Improved wildlife habitat	42.5	34.0	47.5	35.9	47.8
Q6.6: Habitat for songbirds	28.5	20.0	26.9	31.0	32.2
Q6.7: Developed ponds/lakes	18.2	9.9	19.8	23.0	19.9
Q6.8: Stocked fish	22.9	16.0	18.8	29.4	24.8
Q6.9: Developed roads	17.3	17.9	12.6	15.1	19.3
Q6.10: Developed trails	13.7	11.3	20.0	10.9	13.9
Q6.11: Developed boat ramp, etc.	2.2	0.7	2.2	3.4	2.4
Q6.12: Applied fertilizer	31.2	19.5	18.9	40.2	37.0
Q6.13: Used fire to control veg.	10.6	11.4	7.5	12.6	10.4
Q6.14: Controlled wildfire	6.7	4.1	7.6	12.0	5.6
Q6.15: Other	8.5	6.5	8.6	10.6	8.9
----- Average acreage -----					
Management practices used					
Q6.1: Cleared for pasture/farming	23.90	5.60	60.60	16.40	27.80
Q6.2: Harvested mature timber	57.70	71.70	81.40	64.60	37.00
Q6.3: Thinned for better growth	45.70	103.10	64.40	22.10	17.30
Q6.4: Planted trees	40.20	105.00	22.40	34.10	4.20
Q6.5: Improved wildlife habitat	45.80	71.00	104.60	33.50	25.80
Q6.6: Habitat for songbirds	21.40	25.40	29.50	39.60	9.10
Q6.7: Developed ponds/lakes	6.40	1.20	57.70	1.00	.70
Q6.8: Stocked fish	10.90	3.30	56.00	1.80	9.80
Q6.9: Developed roads	12.20	18.40	14.00	0	12.90
Q6.10: Developed trails	20.10	16.50	82.50	3.00	13.50
Q6.11: Developed boat ramp, etc.	8.30	0	62.40	2.30	4.00
Q6.12: Applied fertilizer	38.20	19.50	66.30	36.40	42.60
Q6.13: Used fire to control veg.	21.60	31.20	59.10	20.50	9.30
Q6.14: Controlled wildfire	11.20	.20	53.90	7.40	8.30
Q6.15: Other	5.60	11.30	0	.60	5.70

they managed their forest lands, the most important tax was the Federal income tax at 73.2 percent overall. However, the State income tax was also important (58.9 percent) as were property taxes (55.4 percent). The capital gains tax was mentioned by 35.5 percent, the estate tax by 19.5 percent, investment tax credit by 13.9 percent and the inheritance tax by 11.3 percent. It seems clear, then, that tax management is an important issue to a large proportion of NIPF landowners.

Harvesting and Selling of Timber

A series of questions were asked about the harvesting and selling of timber. Responses to these are presented in

tables 14 and 15. A little more than half of those reporting had sold timber in the recent past. This ranged from 39 percent in the Ozarks to nearly 76 percent in the Coastal Plain. The most frequently cited harvest method was "partial cut" at about 61 percent overall.

Those who had not sold timber were asked why. The reasons are given in table 14 and figure 9. The most frequently cited reason was lack of interest, especially important in the Ozarks at nearly 76 percent. The next most frequently mentioned reason was that the timber was too small. This, however, was mentioned most in the Coastal

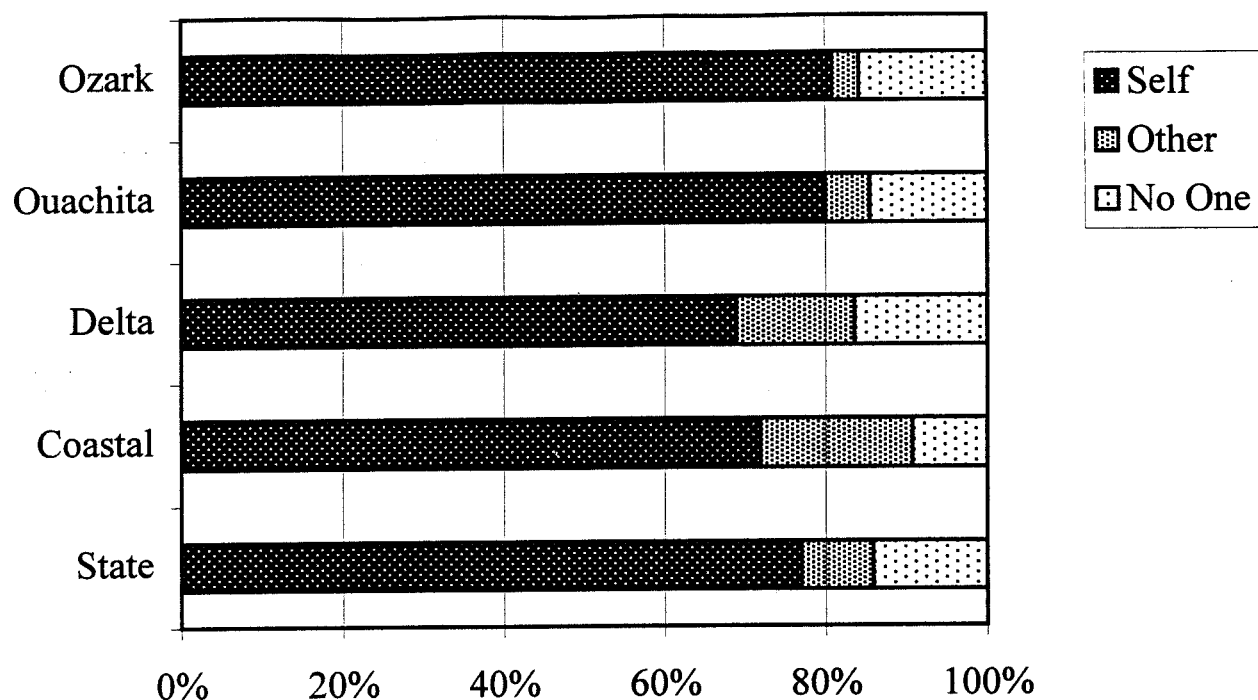


Figure 6—Results of questions raised about who actually managed privately-owned forest land.

Plain at 41 percent, and relatively infrequently in the other regions.

Respondents identified the products they sold. Overall, pine and hardwood sawtimber were the most frequently mentioned products at 54.8 percent and 50.4 percent. Pine sawtimber was, of course, most frequently mentioned in the Coastal Plain and hardwood sawtimber, in the Delta and especially in the Ozarks. Other products were also identified, and by far the most frequently identified was firewood and/or fence posts and other miscellaneous products for personal use.

Most of the respondents reported that they had been satisfied with their sale of forest products. Respondents were also asked whether they had obtained any professional advice when selling timber. The results are

reported in the last line of table 14. Overall, nearly 39 percent had done so. However, this varied from 61 percent in the Coastal Plain to only 24.3 percent in the Ozarks.

Awareness of, Preferences for, and Use of Agencies and Programs

Finally, respondents were asked a variety of questions about information sources, agencies, and programs of which they were aware, which they preferred, which they used, and even some, which they would like to have available. The responses to these questions are reported in tables 15 and 16. The question for table 15 was "What are your major sources of information about farm or forest operations? Identify the best one with a '1' and the next best one with a '2.'" These we have recorded in the table as "best" and "good."

Table 12—Problems encountered on forest land (percent who reported the problem) in Arkansas

Problems encountered	State	Coastal	Delta	Ouachita	Ozark
----- Percent -----					
Timber theft	16.7	22.0	17.0	17.9	13.4
Trash dumping	45.9	53.1	47.2	46.4	41.5
Poaching	39.9	31.1	43.4	43.6	41.8
Boundary line encroachment	23.9	36.2	16.0	20.7	21.4
Conflicts with neighbors	12.6	15.3	7.5	14.3	12.2
Land use regs. and restrictions	3.8	1.1	4.7	7.9	3.3
Other	4.3	4.5	1.9	4.3	5.0

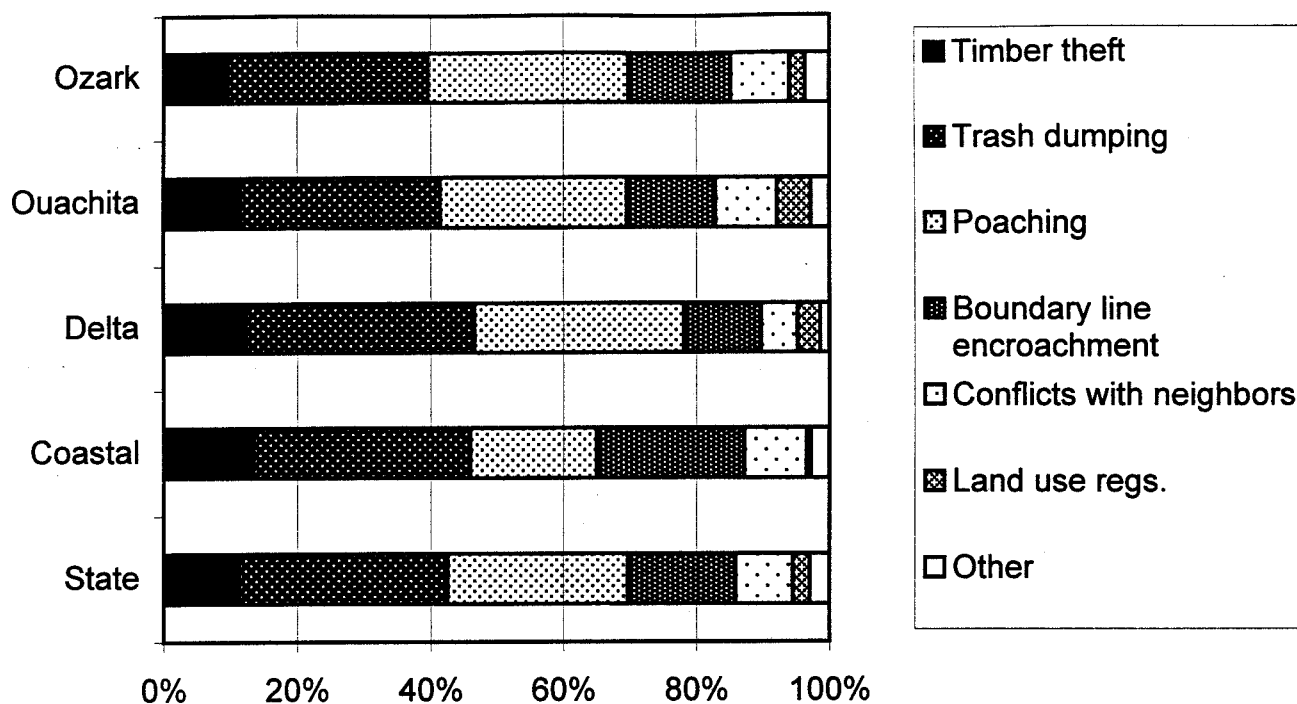


Figure 7—Problems reported in the management of private forest lands.

Table 13—Influence of taxes upon management and use of forest lands in Arkansas

	State	Coastal	Delta	Ouachita	Ozark
----- Percent -----					
Do taxes influence the management and use of your property?					
Yes	27.9	46.5	23.5	24.7	21.3
No	60.2	46.5	60.5	61.0	66.7
Don't know	11.9	7.0	16.0	14.4	12.0
Total	100.0	100.0	100.0	100.0	100.0
----- Percent of those reporting "yes" above -----					
Which tax programs influence management					
Federal income tax	73.2	75.9	79.2	75.7	68.3
State income tax	58.9	59.8	66.7	59.5	56.1
Property tax	55.4	49.4	70.8	56.8	57.3
Estate tax	19.5	21.8	25.0	10.8	19.5
Inheritance tax	11.3	10.5	12.5	8.1	13.4
Capital gain tax	35.5	42.5	33.3	35.1	29.3
Investment tax credit	13.9	17.2	12.5	10.8	12.3
Other	2.6	2.3	0	2.6	3.8

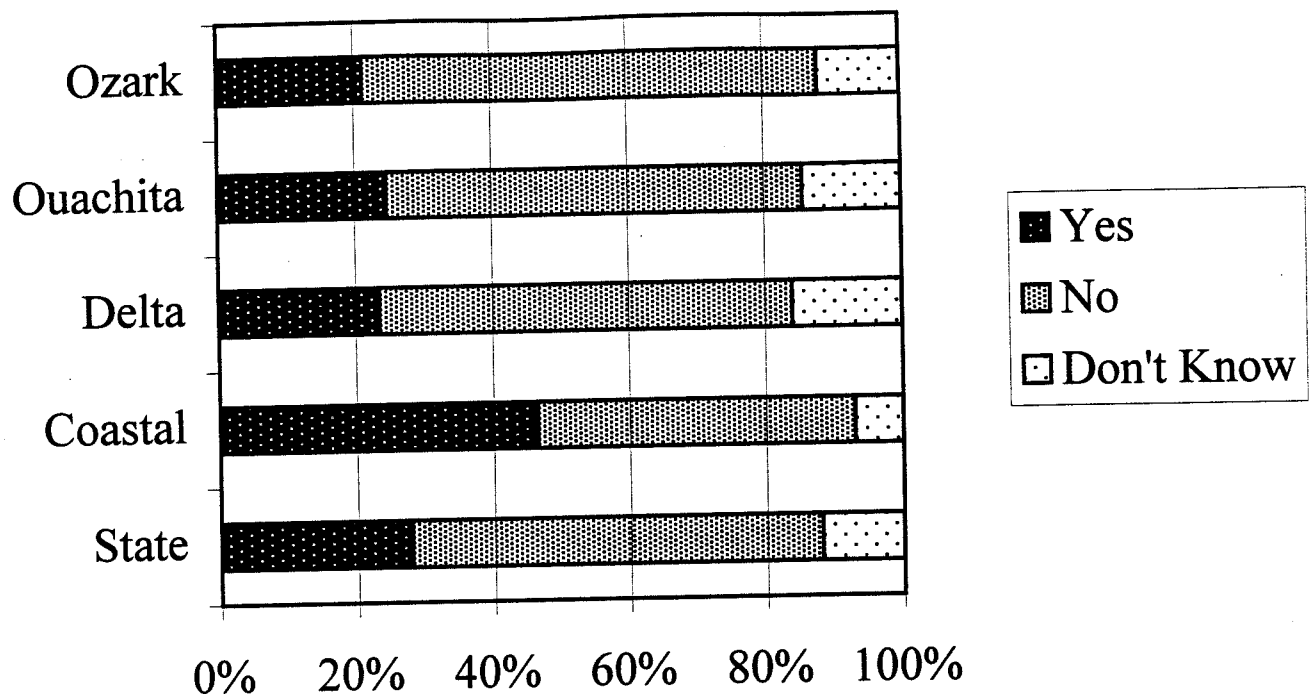


Figure 8—Responses to questions about whether taxes affect the management of private forest lands.

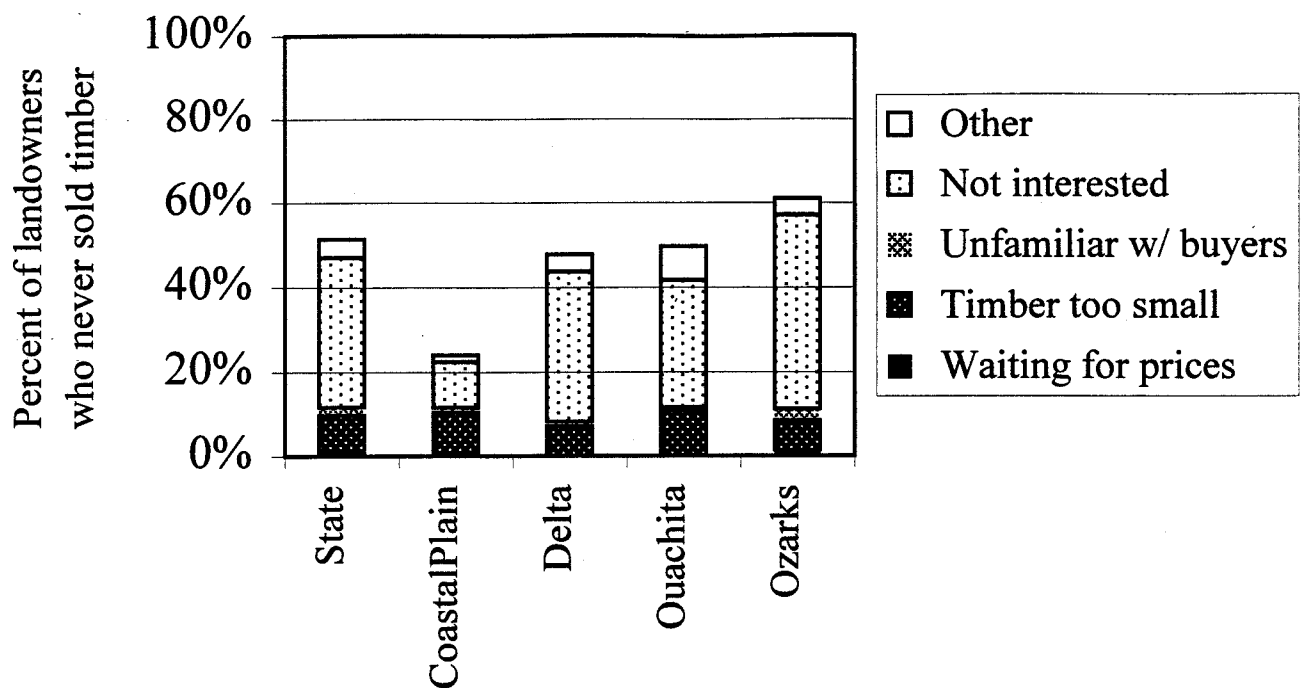


Figure 9—Responses to questions about why private landowners did not sell timber.

Table 14—Harvesting and sale of timber in Arkansas

	State	Coastal	Delta	Ouachita	Ozarks
	----- Percent -----				
Ever sold timber (yes)	48.7	75.9	52.2	50.3	39.1
Harvest method					
Harvest or seed tree cut	23.9	22.9	31.5	28.2	20.7
Partial cut	61.3	58.6	57.4	60.6	67.4
Thinning	15.5	23.6	14.8	14.1	8.1
Salvage cut	9.5	18.6	3.7	5.6	5.2
Reasons for not selling					
Waiting for prices	1.4	2.3	0	0	2.0
Timber too small	17.6	40.9	14.9	21.7	11.8
Unfamiliar w/buyers	3.6	4.5	2.1	1.4	4.4
Not interested	69.0	45.5	74.5	60.9	75.5
Other	8.5	6.8	8.5	15.9	6.4
Total	100.0	100.0	100.0	100.0	100.0
Products from last sale					
Pine sawtimber	54.8	79.9	44.3	69.9	25.7
Hardwood sawtimber	50.4	41.7	55.7	19.2	73.5
Pine pulpwood	41.3	68.3	39.3	38.4	16.2
Hardwood pulpwood	27.9	47.5	29.5	24.7	8.8
Pine veneer	1.7	2.9	3.3	1.4	0
Hardwood veneer	3.7	1.4	8.2	2.7	4.4
Other	7.3	2.9	4.9	4.1	14.7
Other products sold					
Firewood for personal use	69.9	53.4	56.6	81.9	84.2
Fence posts, etc., personal use	34.4	9.2	15.1	50.0	57.6
Firewood for sale	8.9	1.5	3.8	9.7	17.3
Posts, etc. for sale	6.1	8.4	5.7	6.9	3.6
Christmas trees for sale	.3	0	0	0	.7
Pinestraw, bark, mulch for sale	0	0	0	0	0
Other	4.1	3.1	1.9	7.0	4.3
Satisfied with the sale?	79.0	81.6	78.9	71.0	80.5
Get professional advice?	38.8	61.0	37.3	25.4	24.3

Table 15—Sources of information identified as “best” and as “good” by respondents in Arkansas

	State		Coastal		Delta		Ouachita		Ozark	
	Best	Good	Best	Good	Best	Good	Best	Good	Best	Good
	----- Percent -----									
Cooperative Extension Service	27.8	6.7	19.1	5.3	38.5	8.3	33.3	8.0	27.0	6.5
NRCS (Formerly SCS)	12.1	6.8	9.0	4.3	15.6	9.2	10.1	9.4	13.5	6.5
State forestry commission	11.9	4.6	14.4	3.7	12.8	5.5	11.6	3.6	10.4	5.1
Farm or forestry suppliers	3.0	2.9	3.2	3.2	3.7	3.7	3.6	5.8	2.5	1.4
Farm, forestry, etc. magazines	10.1	6.7	8.5	5.3	6.4	8.3	17.4	8.0	9.3	6.5
Radio or television	8.7	4.7	5.3	4.8	8.3	4.6	10.1	5.1	10.1	4.5
Friends and neighbors	28.2	12.8	28.2	10.6	20.2	9.2	22.5	21.7	32.9	11.5
Universities	1.6	1.0	3.2	1.6	.9	0	.7	.7	1.4	1.1
Others	12.0	.9	21.3	0	10.2	0	6.5	0	9.9	2.0

Table 16—Use, awareness of, and desire for government programs in Arkansas

	State	Coastal	Delta	Ouachita	Ozarks
	----- Percent -----				
Any government agency help?	16.1	23.9	22.9	13.3	11.4
Aware of tax credits?	15.1	21.7	16.2	19.7	9.7
Aware of amortization methods available for regeneration?	14.5	26.1	14.4	14.0	9.3
Ever used incentive programs?	11.6	20.7	15.2	12.9	5.6
Which programs?					
Forestry incentive programs	5.4	12.2	4.8	5.8	2.1
Conservation reserve program	2.7	4.6	5.6	4.5	0
Stewardship incentive program	1.0	1.0	.8	1.3	1.0
Other	.9	0	1.6	.6	1.3
What were funds used for?					
Reforestation	8.0	16.3	8.0	9.0	3.3
Site preparation	4.0	6.6	3.2	6.5	2.1
Wildlife habitat improvement	2.9	3.1	3.2	2.6	2.8
Timber stand improvement	2.5	6.1	1.6	0	2.1
Water quality protection	1.4	1.5	.8	1.9	1.3
Setting aside land	1.2	.5	2.4	1.9	.8
Wetlands	1.2	.5	5.6	0	.5
Precommercial thinning	.7	1.0	0	1.3	.5
Road maintenance	.7	1.0	.8	0	.8
Other	.6	1.0	0	0	.8
Use regeneration at removal?	51.4	65.8	52.8	49.0	44.6
Does regeneration idea interest you?	54.2	48.2	56.0	50.3	48.2

Friends and neighbors come out as both “best” and “good” most frequently, but they are closely followed by the Cooperative Extension Service, which is “best” for 27.8 percent and “good” for 6.7 percent for the State as a whole. The Extension Service’s reputation, however, varies considerably by region. It is lowest in the Coastal Plains (19.1 percent “best”) and highest in the Delta (38.5 percent “best”). Universities as separate from the Cooperative Extension Service were identified very infrequently.

Help from government agencies was reported by only 16.1 percent overall, but by as many as 23.9 percent and 22.9 percent in the Coastal Plain and Delta, respectively. And, consistent with this, awareness of tax credits, amortization methods for regeneration, and the use of incentive programs were all substantially higher in the Coastal Plain, though even there they were in the 20’s.

Forestry Incentive Programs were the most frequently used programs but were reported by only 5.4 percent overall and 12.2 percent in the Coastal Plain. CRP was reported by 2.7 percent overall, none in the Ozarks, and around 5 percent in the other three regions. Use of the Stewardship Incentive Program was almost nonexistent. The major use of the funds from these programs was for forest regeneration at

8 percent of all respondents, followed by site preparation at 4 percent.

CONCLUSIONS AND RECOMMENDATIONS

About 866 forest landowners from 12 counties of Arkansas, representing its 4 physiographic regions, were surveyed to determine their characteristics, some of their attitudes and opinions, their experiences with forest management, and their expressed needs. A return rate of about 37 percent was achieved with a mailed survey. Samples were of uniform size for the 12 counties, allowing for separate county-level estimation even though very little analysis has yet been performed at the county level. Each respondent to the survey, it is estimated, “represents” about 14 NIPF landowners in the sample counties alone, and this varies from 41 in Fulton County to only 5 in Perry County. The information is presented for the State as a whole and separately for the four physiographic regions.

Arkansas’ NIPF landowners are, on average, advanced in age, and nearly half are retired. Their educational and income levels are, compared to the rest of the State, relatively high. Although most live on or near their forest acreage, there is a significant number who live long distances away, especially in the Ozarks.

Respondents reported owning, on average, about 250 acres of forest land, 133 acres of pine forest, 94 acres of hardwood forest, and 107 acres of farmland. These acreages, of course, vary greatly among the four regions. Among the respondents, 68.4 percent of the land is owned by the 17.5 percent of owners who have more than 500 acres, whereas 3.7 percent of the forested land is possessed by the 44.3 percent who reported having less than 50 acres.

On a variety of questions that dealt with reasons for owning land, intentions with respect to use of the land in the future, and opinions about land regulations two patterns emerged. One is a concern about and/or interest in environment, recreation, wildlife, etc., and the other is the intent to use and manage the land primarily as a means of generating income through timber production. The latter, which it does not by any means dominate, is remarkably high, frequently mentioned, and widespread among these respondents. The survey results also show the obvious distinctions among landowners and among regions concerning the types of forest land they own. In the Coastal Plain, of course, pine dominates, whereas in the Ozarks, hardwoods are the major issue.

Without going into detail here, the research suggests several things: First, careful targeting is needed, when discussing programs, policy, or even the project impacts of various developments, like the emergence of the chip mills and the chip mill issue. A number of elements need to be taken into consideration in targeting, including the types of forest resources the owner has, which will be closely associated, of course, with the region of the State; the amount of forested land owned; the owners goals and objectives with respect to his or her forest land; and, finally, the characteristics of the owner himself or herself. Elderly landowners, who may reside in California, and own hardwood forests in the Ozarks, will clearly have different objectives and different needs from a resident (or even nonresident) landowner with substantial pine acreage in the

Coastal Plain. So, the next step really is to perform some analyses of these very data looking at the size and type of the forest land owned, the objectives of the landowner, the characteristics of the landowner, and, of course, what is technically and economically feasible at a given point in time. Moving in the direction of improved management of hardwood resources is likely, for example, to involve very different considerations, time frames, etc., from trying to accomplish the same in the Coastal Plain with pine.

Another thing that is seriously needed is the development of a better data base. Periodic surveys like this and the one done earlier by Greene and his associates are valuable but limited, partly by their very periodicity. What is really needed is the development of a minimal, on-going population data base or list, which can be used both for sampling purposes for surveys such as this, but, perhaps even more importantly, for periodic, highly targeted surveys to deal with specific issues. Such a list, if kept up to date, properly protected, and appropriately organized, would also be an extremely valuable resource to those responsible for providing services to forest landowners. Finally, given the existence of the fire tax, it should, in fact, be possible to build such a list.

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Appendix 1—Detailed acreages by types of land, region, and county in Arkansas

Variable	Mean	Std Dev.	Minimum	Maximum	Number
Coastal Plain					
Total acreage	645	1835	5	14000	160
Forested acreage	574	1785	2	14000	160
Acreage in pine	422	1408	0	11000	160
Acreage in hardwood	112	479	0	5400	160
Acreage in farmland	60	270	0	3050	160
Bradley County					
Total acreage	399	929	10	6000	64
Forested acreage	365	876	5	5400	64
Acreage in pine	277	765	0	5000	64
Acreage in hardwood	41	116	0	700	64
Acreage in farmland	31	84	0	600	64
Miller County					
Total acreage	388	987	5	6250	44
Forested acreage	223	547	2	3200	44
Acreage in pine	143	426	0	2200	44
Acreage in hardwood	53	161	0	1000	44
Acreage in farmland	156	496	0	3050	44
Ouachita County					
Total acreage	1167	2864	5	14000	52
Forested acreage	1127	2875	2	14000	52
Acreage in pine	837	2244	0	11000	52
Acreage in hardwood	251	806	0	5400	52
Acreage in farmland	14	27	0	113	52
Delta Region					
Total acreage	398	701	2	5500	96
Forested acreage	117	189	1	1500	96
Acreage in pine	39	161	0	1500	96
Acreage in hardwood	42	75	0	400	96
Acreage in farmland	235	518	0	4000	96
Cross County					
Total acreage	441	508	10	2000	39
Forested acreage	87	101	4	400	41
Acreage in pine	3	16	0	100	41
Acreage in hardwood	67	101	0	400	41
Acreage in farmland	282	394	0	1600	41
Lincoln County					
Total acreage	365	821	2	5500	52
Forested acreage	140	233	1	1500	55
Acreage in pine	65	209	0	1500	55
Acreage in hardwood	23	40	0	185	55
Acreage in farmland	200	595	0	4000	55
Ouachita region					
Total acreage	561	2882	5	30000	117
Forested acreage	210	845	2	8000	122
Acreage in pine	125	635	0	6000	122
Acreage in hardwood	72	223	0	2000	122
Acreage in farmland	112	216	0	2000	122
Logan County					
Total acreage	270	643	6	5000	62
Forested acreage	132	382	2	3000	63
Acreage in pine	75	317	0	2500	63
Acreage in hardwood	49	80	0	500	63
Acreage in farmland	125	270	0	2000	63

(continued)

**Appendix 1—Detailed acreages by types of land, region, and county in Arkansas
(cont.)**

Variable	Mean	Std Dev.	Minimum	Maximum	Number
Perry County					
Total acreage	890	4143	5	30000	55
Forested acreage	294	1150	3	8000	59
Acreage in pine	179	853	0	6000	59
Acreage in hardwood	97	310	0	2000	59
Acreage in farmland	97	140	0	800	59
Ozark region					
Total acreage	244	490	0.5	6000	323
Forested acreage	150	432	0.5	5800	326
Acreage in pine	22	239	0	4300	3
Acreage in hardwood	109	294	0	3500	326
Acreage in farmland	93	196	0	2020	326
Fulton County					
Total acreage	219	243	5	1169	54
Forested acreage	83	88	1	500	54
Acreage in pine	4	19	0	130	54
Acreage in hardwood	63	83	0	480	54
Acreage in farmland	127	209	0	1000	54
Johnson County					
Total acreage	155	155	2	700	67
Forested acreage	88	86	2	400	68
Acreage in pine	23	44	0	210	68
Acreage in hardwood	43	51	0	200	68
Acreage in farmland	52	71	0	300	68
Madison County					
Total acreage	317	606	3	4000	68
Forested acreage	207	524	3	3500	69
Acreage in pine	1	4	0	30	69
Acreage in hardwood	199	526	0	3500	69
Acreage in farmland	100	187	0	1300	69
Sharp County					
Total acreage	242	326	4	1758	70
Forested acreage	154	257	3	1520	71
Acreage in pine	2	6	0	40	71
Acreage in hardwood	116	202	0	1250	71
Acreage in farmland	129	296	0	2020	71
Stone County					
Total acreage	285	793	0.5	6000	64
Forested acreage	209	750	0.5	5800	64
Acreage in pine	79	537	0	4300	64
Acreage in hardwood	113	277	0	1500	64
Acreage in farmland	58	124	0	600	64

Appendix 2—Details of land ownership in Arkansas by size categories (total acreage, numbers and percentages)

County	0–49	50–99	100–249	250–499	500+	Total
Bradley	19	9	21	14	9	72
(percent)	26.4	12.5	29.2	19.4	12.5	100
Cross	8	3	11	10	12	44
	18.2	6.8	25	22.7	27.3	100
Fulton	19	13	18	13	6	69
	27.5	18.8	26.1	18.8	8.7	99.9
Johnson	29	11	20	13	3	76
	38.2	14.5	26.3	17.1	3.9	100
Lincoln	21	9	14	9	10	63
	33.3	14.3	22.2	14.3	15.9	100
Logan	21	15	17	15	6	74
	28.4	20.3	23	20.3	8.1	100.1
Madison	15	13	27	11	10	76
	19.7	17.1	35.5	14.5	13.2	100
Miller	23	8	11	5	8	55
	41.8	14.5	20	9.1	14.5	99.9
Ouachita	19	8	14	5	18	64
	29.7	12.5	21.9	7.8	28.1	100
Perry	23	10	10	19	5	67
	34.3	14.9	14.9	28.4	7.5	100
Sharp	23	9	20	11	11	74
	31.1	12.2	27	14.9	14.9	100.1
Stone	37	9	10	8	9	73
	50.7	12.3	13.7	11	12.3	100
Column	257	117	193	133	107	807
Total	31.8	14.5	23.9	16.5	13.3	100
Region						
Coastal Plain	61	25	46	24	35	191
	31.9	13.1	24.1	12.6	18.3	100
Delta	29	12	25	19	22	107
	27.1	11.2	23.4	17.8	20.6	100.1
Ouachita	44	25	27	34	11	141
	31.2	17.7	19.1	24.1	7.8	99.9
Ozark	123	55	95	56	39	368
	33.4	14.9	25.8	15.2	10.6	99.9
Column	257	117	193	133	107	807
Total	31.8	14.5	23.9	16.5	13.3	100

(continued)

Appendix 2 (cont.)—Details of land ownership in Arkansas by size categories (forested acreage, numbers and percentages)

County	0–49	50–99	100–249	250–499	500+	Total
Bradley	23	7	17	9	8	64
(percent)	35.9	10.9	26.6	14.1	12.5	100
Cross	23	5	8	5	—	41
	56.1	12.2	19.5	12.2	—	100
Fulton	25	11	16	1	1	54
	46.3	20.4	29.6	1.9	1.9	100.1
Johnson	29	16	19	4	—	68
	42.6	23.5	27.9	5.9	—	99.9
Lincoln	26	4	18	5	2	55
	47.3	7.3	32.7	9.1	3.6	100
Logan	29	19	10	2	3	63
	46	30.2	15.9	3.2	4.8	100.1
Madison	26	18	15	5	5	69
	37.7	26.1	21.7	7.2	7.2	99.9
Miller	20	9	7	3	5	44
	45.5	20.5	15.9	6.8	11.4	100.1
Ouachita	17	9	7	4	15	52
	32.7	17.3	13.5	7.7	28.8	100
Perry	26	13	13	4	3	59
	44.1	22	22	6.8	5.1	100
Sharp	30	11	17	8	5	71
	42.3	15.5	23.9	11.3	7	100
Stone	38	8	11	1	6	64
	59.4	12.5	17.2	1.6	9.4	100.1
Column	312	130	158	51	53	704
Total	44.3	18.5	22.4	7.2	7.5	99.9
Region						
Coastal Plain	60	25	31	16	28	160
	37.5	15.6	19.4	10	17.5	100
Delta	49	9	26	10	2	96
	51	9.4	27.1	10.4	2.1	100
Ouachita	55	32	23	6	6	122
	45.1	26.2	18.9	4.9	4.9	100
Ozark	148	64	78	19	17	326
	45.4	19.6	23.9	5.8	5.2	99.9
Column	312	130	158	51	53	704
Total	44.3	18.5	22.4	7.2	7.5	99.9

(continued)

**Appendix 2 (cont.)—Details of land ownership in Arkansas by size categories
(pine acreage, numbers and percentages)**

County	None	0–49	50–99	100–249	250–499	500+	Total
Bradley	13	21	6	12	5	7	64
(Percent)	20.3	32.8	9.4	18.8	7.8	10.9	100
Cross	37	3	—	1	—	—	41
	90.2	7.3	—	2.4	—	—	99.9
Fulton	48	5	—	1	—	—	54
	88.9	9.3	—	1.9	—	—	100.1
Johnson	34	23	6	5	—	—	68
	50	33.8	8.8	7.4	—	—	100
Lincoln	28	14	3	7	2	1	55
	50.9	25.5	5.5	12.7	3.6	1.8	100
Logan	26	23	4	8	1	1	63
	41.3	36.5	6.3	12.7	1.6	1.6	100
Madison	61	8	—	—	—	—	69
	88.4	11.6	—	—	—	—	100
Miller	18	14	3	4	2	3	44
	40.9	31.8	6.8	9.1	4.5	6.8	99.9
Ouachita	13	13	7	5	1	13	52
	25	25	13.5	9.6	1.9	25	100
Perry	27	18	7	3	2	2	59
	45.8	30.5	11.9	5.1	3.4	3.4	100.1
Sharp	59	12	—	—	—	—	71
	83.1	16.9	—	—	—	—	100
Stone	38	21	1	3	—	1	64
	59.4	32.8	1.6	4.7	—	1.6	100.1
Column	402	175	37	49	13	28	704
Total	57.1	24.9	5.3	7	1.8	4	100.1
Region							
Coastal Plain	44	48	16	21	8	23	160
	27.5	30	10	13.1	5	14.4	100
Delta	65	17	3	8	2	1	96
	67.7	17.7	3.1	8.3	2.1	1	99.9
Ouachita	53	41	11	11	3	3	122
	43.4	33.6	9	9	2.5	2.5	100
Ozark	240	69	7	9	—	1	326
	73.6	21.2	2.1	2.8	—	0.3	100
Column	402	175	37	49	13	28	704
Total	57.1	24.9	5.3	7	1.8	4	100.1

(continued)

**Appendix 2 (cont.)—Details of land ownership in Arkansas by size categories
(hardwood acreage, numbers and percentages)**

County	None	0–49	50–99	100–249	250–499	500+	Total
Bradley	29	24	6	2	1	2	64
(Percent)	45.3	37.5	9.4	3.1	1.6	3.1	100
Cross	13	14	4	6	4	—	41
	31.7	34.1	9.8	14.6	9.8	—	100
Fulton	14	18	8	13	1	—	54
	25.9	33.3	14.8	24.1	1.9	—	100
Johnson	21	22	15	10	—	—	68
	30.9	32.4	22.1	14.7	—	—	100.1
Lincoln	27	20	4	4	—	—	55
	49.1	36.4	7.3	7.3	—	—	100.1
Logan	13	31	12	5	1	1	63
	20.6	49.2	19	7.9	1.6	1.6	99.9
Madison	11	22	12	14	5	5	69
	15.9	31.9	17.4	20.3	7.2	7.2	99.9
Miller	22	14	3	2	2	1	44
	50	31.8	6.8	4.5	4.5	2.3	99.9
Ouachita	16	18	4	6	3	5	52
	30.8	34.6	7.7	11.5	5.8	9.6	100
Perry	18	23	10	4	1	3	59
	30.5	39	16.9	6.8	1.7	5.1	100
Sharp	17	23	8	12	7	4	71
	23.9	32.4	11.3	16.9	9.9	5.6	100
Stone	21	24	4	9	1	5	64
	32.8	37.5	6.3	14.1	1.6	7.8	100.1
Column	222	253	90	87	26	26	704
Total	31.5	35.9	12.8	12.4	3.7	3.7	100
Region							
Coastal Plain	67	56	13	10	6	8	160
	41.9	35	8.1	6.3	3.8	5	100.1
Delta	40	34	8	10	4	—	96
	41.7	35.4	8.3	10.4	4.2	—	100
Ouachita	31	54	22	9	2	4	122
	25.4	44.3	18	7.4	1.6	3.3	100
Ozark	84	109	47	58	14	14	326
	25.8	33.4	14.4	17.8	4.3	4.3	100
Column	222	253	90	87	26	26	704
Total	31.5	35.9	12.8	12.4	3.7	3.7	100

(continued)

Appendix 2 (cont.)—Details of land ownership by size categories (pine acreage, numbers and percentages)

County	None	0–49	50–99	100–249	250–499	500+	Total
Bradley	33	19	6	4	1	1	64
(percent)	51.6	29.7	9.4	6.3	1.6	1.6	100.2
Cross	6	6	4	12	4	9	41
	14.6	14.6	9.8	29.3	9.8	22	100.1
Fulton	11	19	5	11	5	3	54
	20.4	35.2	9.3	20.4	9.3	5.6	100.2
Johnson	20	25	9	11	3	—	68
	29.4	36.8	13.2	16.2	4.4	—	100
Lincoln	19	17	5	6	2	6	55
	34.5	30.9	9.1	10.9	3.6	10.9	99.9
Logan	9	21	8	18	5	2	63
	14.3	33.3	12.7	28.6	7.9	3.2	100
Madison	16	22	10	16	2	3	69
	23.2	31.9	14.5	23.2	2.9	4.3	100
Miller	19	13	2	5	1	4	44
	43.2	29.5	4.5	11.4	2.3	9.1	100
Ouachita	33	14	3	2	—	—	52
	63.5	26.9	5.8	3.8	—	—	100
Perry	14	18	8	11	7	1	59
	23.7	30.5	13.6	18.6	11.9	1.7	100
Sharp	22	20	5	12	10	2	71
	31	28.2	7	16.9	14.1	2.8	100
Stone	20	26	6	8	2	2	64
	31.3	40.6	9.4	12.5	3.1	3.1	100
Column	222	220	71	116	42	33	704
Total	31.5	31.3	10.1	16.5	6	4.7	100.1
Region							
Coastal Plain	85	46	11	11	2	5	160
	53.1	28.8	6.9	6.9	1.3	3.1	100.1
Delta	25	23	9	18	6	15	96
	26	24	9.4	18.8	6.3	15.6	100.1
Ouachita	23	39	16	29	12	3	122
	18.9	32	13.1	23.8	9.8	2.5	100.1
Ozark	89	112	35	58	22	10	326
	27.3	34.4	10.7	17.8	6.7	3.1	100
Column	222	220	71	116	42	33	704
Total	31.5	31.3	10.1	16.5	6	4.7	100.1